

WHAT IS CLAIMED IS:

1. In a grinding machine grinding a workpiece by a grinding wheel to supply coolant to one of a grinding point or said workpiece by way of a relative movement between said grinding wheel rotatably supported on a wheel slide and said workpiece
5 supported by a work support device, a grinding method comprising steps of:

cutting off air layer flowing on a circumferential surface of said grinding wheel by blowing hydraulic jet transversally from one side to the other side of said grinding wheel along said circumferential surface at an upper stream position of a rotational direction of said grinding wheel from said grinding point; and

10 collecting mist of coolant blown by said hydraulic jet through a recovering port mounted on a wheel guard covering a part of said grinding wheel.

2. A grinding method according to Claim 1, wherein said grinding method further comprising steps of:

15 absorbing said mist of said coolant from said recovering port by an absorbing equipment;

separating said mist of said coolant from said recovering port by a separator inserted between said recovering port and said absorbing equipment; and

20 discharging hydraulic coolant from a discharge port mounted on a lower portion of said wheel guard.

3. A grinding method according to Claim 2, wherein said recovering port is formed on an upper portion of a back area of said wheel guard.

25 4. A grinding method according to Claim 2, wherein said recovering port is mounted on said wheel guard at said other side of said grinding wheel to face to said blown hydraulic jet.

5. In a grinding machine grinding a workpiece by a grinding wheel to supply coolant to one of a grinding point or said workpiece by way of a relative movement between said grinding wheel rotatably supported on a wheel slide and said workpiece supported by a work support device, said grinding machine comprising:

5 a nozzle mounted on a wheel guard covering a part of said grinding wheel and blowing hydraulic jet transversally from one side to the other side of said grinding wheel along a circumferential surface at an upper stream position of a rotational direction of said grinding wheel from said grinding point to cut off air layer flowing on said circumferential surface of said grinding wheel; and

10 a recovering port mounted on said wheel guard and collecting mist of coolant blown by said hydraulic jet.

6. A grinding machine according to Claim 5, wherein said grinding machine further comprising:

15 an absorbing equipment connecting to said recovering port mounted on said wheel guard;

 a separator connected between said recovering port and said absorbing equipment and separating said mist of said coolant from said hydraulic jet;

 a discharge port mounted on a lower portion of said wheel guard and
20 discharging hydraulic coolant from said wheel guard; and
 said hydraulic jet is air jet.

7. A grinding machine according to Claim 6, wherein said recovering port is formed on an upper portion of a back area of said wheel guard.

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8. A grinding machine according to Claim 6, wherein said recovering port is mounted on said wheel guard at said other side of said grinding wheel to face to said nozzle.

9. A grinding machine according to one of Claim 6 to Claim 8, wherein said grinding machine comprises a baffle plate mounted on said wheel guard and facing to said grinding wheel with a small clearance at an upper stream position of said rotational direction of said grinding wheel from a point of said hydraulic jet.

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10. A grinding machine according to one of Claim 6 to Claim 9, wherein said wheel guard is an almost sealed construction to project only a front portion of said grinding wheel around said grinding point from said wheel guard through a slit formed in a front wall of said wheel guard.

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11. A grinding machine according to Claim 10, wherein:

said wheel guard comprises a guard body shielding said one side surface of said grinding wheel at a side of said wheel slide and said circumferential surface of said grinding wheel, and a cover shielding an opening portion of said grinding wheel at a side of said other side of said grinding wheel; and

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said slit is formed by a cooperation of a front wall of said guard body and a front wall of said cover when said cover is pivoted to close said opening portion.

12. A grinding machine according to Claim 7 or Claim 8, wherein said grinding machine further comprises a coolant supplying device, and said coolant supplying device is a unitary construction of:

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a coolant supplying portion consists of a coolant nozzle discharging said coolant to at least one of said grinding point P and an outer peripheral surface of said workpiece, and a coolant introducing path introducing said coolant to said coolant nozzle;

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a hydraulic jet supplying portion consisting of a hydraulic jet nozzle blowing hydraulic jet transversally from said one side to the other side of said grinding wheel along said circumferential surface of said grinding wheel at an upper stream position

of said wheel rotational direction from said grinding point, and an introducing path introducing said hydraulic jet to said hydraulic jet nozzle; and

5 a hydraulic jet recovering portion consisting of a recovering port member opened to face to said hydraulic jet nozzle at a side of said other side surface of said grinding wheel 51, and a hydraulic jet discharging path leading said hydraulic jet with said mist of said coolant outside.

13. A grinding machine according to one of Claim 6 to Claim 12, wherein said grinding machine further comprises an ecology grinding equipment, said ecology grinding equipment consists of:

said coolant nozzle facing directly to said workpiece for supplying a small amount of said coolant to cool said workpiece;

15 a compressed air nozzle opening to said circumferential surface of said grinding wheel at an upper stream of said rotational direction of said grinding wheel from said grinding point; and

a nozzle mounted on said compressed air nozzle and connecting to a lubrication tank to drop lubrication oil to said compressed air nozzle in order to lubricate said grinding wheel at said grinding point.